



# **Project Record Black Ant Salvage**

## **Document # G033**

**Banci, V.A. 1987. Ecology and behavior of  
wolverine in Yukon. M.S. Thesis, Univ. British  
Columbia, Vancouver. 178 p.**

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A) 3; B) Yukon Territory; C) Field studies with telemetry and laboratory study of 461 trapped specimens, 1982-1985.

*Description* - features, distribution.

*Habitat Characteristics* - study area, cover, climate.

*Life History* - food, hmrage, movements, dispersal, socbehav, behavior, health.

*Population Dynamics* - natality, mortality, poptrend, popcomp, popreg.

*Species Management* - age/tech, kill/tech, repro, harvest, harv/strategy, interactions.

*Comments* - This study represents the most thorough and wide-ranging field study of the species that has been undertaken in Canada, and since there has as yet been no formal publication of results in easily obtainable sources, detailed coverage is provided here; **REPRODUCTION** - among 180 usable female samples, 109 (61%) were in the first two age classes, with all of 82 kits (age 0+) and 25 of 27 subadults (1+) in the "non-reproductive" category; for the 71 older animals, those found to be in the reproductive (pregnant or post-partum) group included 16 of 30 in age 2+, 12 of 13 in each of 3+ and 4+, 6 of 7 in age 5+, and only 3 of 8 in a combined 6+ - 11+ group; overall, owing partly to the young age distribution of the sample, only 53 of 180 females in the sample (29.4%) were in the reproductive class; the mean *in utero* litter size was 3.2, and there was evidence for litter size increasing with age of female, ranging from 2.8 to 3.4 in ages 2+ to 5+; it is emphasized that the laboratory results, though indicating low productivity, probably are nevertheless optimistic because they fail to account for intra-uterine and pre-weaning losses; implantation occurred as early as November and some births as late as March, but there was some evidence that most parturition may be in February; males were sexually mature at 2+ years, and showed some evidence of increased breeding condition by late winter (March); **AGE DETERMINATION** is a problem for this species--though not considered ideal, dental cementum analysis using upper premolars was used in this study; **FEATURES (SIZE)** - adult males were heavier than younger animals, but body measurements did not differ--estimated whole weights for kits, subadults, and adults, respectively, were 11.5 kg (n=59), 11.9 kg (n=44), and 12.8 kg (n=111); comparable weights for females were 8.3 kg (n=60), 7.9 kg (n=30), and 8.7 kg (n=82)--the lower figures for subadult females was possibly due to weight loss during their initial period of independence (a year later than for males); the largest estimated weights were 14.4 kg (female) and 21.3 kg (male); whole weights of live-trapped males varied from 10.2 kg for a kit to 15.0 kg for an adult aged 10+, and averaged 13.0 (n=5)--comparable figures for females were 6.6 and 7.8 kg for two kits, up to 11.0 kg for an adult, with a mean of 8.7 kg (n=5); **CONDITION** - a kidney fat index and a visual estimate of total body fat were both considered inadequate for measuring condition, although there was some evidence that females were in low in body fat more often than males; **FOOD HABITS** - detailed comparisons of stomach contents for quick-killed and restrained animals indicated that consumption of trap bait was rare and unlikely to bias food habits results; based on 411 stomach, 95 (23.1%) were empty-- suggesting that food was generally difficult to obtain; frequency of occurrence and percent dry weight of major prey items in the remaining 316

stomachs was snowshoe hare (18.5, 6.7), porcupine (10.9, 0.8), moose (9.7, 12.5), caribou (5.4, 8.0), red squirrel (4.4, 0.7), and ground squirrel (2.4, 0.9); flesh, fat, and bone not identified to specific groups, but believed mostly from wild ungulates, had a combined frequency of 32.9% and a percent dry weight occurrence of 31.0--that category combined with the identified ungulate remains demonstrates its major importance in the diet (believed mostly scavenged); other ungulates identified (besides moose and caribou) were elk, mule deer, thinhorn sheep, and mountain goat, all at occurrences and dry weight percentages of 2% or less; other prey remains, all at low incidence, were shrew, pika, chipmunk, flying squirrel, marmot, beaver, at least 4 species of microtines, traces of marten, mink, weasel, coyote, wolf, lynx, unident. fish, and birds from at least 4 families; the greatest diet variability in the sample period was in November, when snow cover is usually least; the hibernators among the small mammal prey were believed taken from caches; small mammals were rarely found in the same stomachs with ungulates, suggesting that they were hunted when larger items were not available; snowshoe hare occurrence (the most frequent identified item) was despite the fact that the study commenced during the year of the species' cyclic decline; other evidence of food use included observations of wolverines carrying or chasing ground squirrels, tracks indicating hunting of ptarmigan, use of spawned salmon frozen into river ice, and use of garbage at a camp; in addition, 5 of 12 winter scats contained kinnikinnick berries; **HOME RANGE** - 10 wolverines were radio-collared, but only 5 (3 adult females, 1 adult male, and 1 subadult male) were monitored significantly; all 3 adult females made long distance "excursions" in summer, but without those (whose purpose was not determined), summer and winter ranges were similar in size; only 1 of the 3 females produced young, and her annual home range (139 km<sup>2</sup>) was half that of the two without kits (202 and 343 km<sup>2</sup>); the adult male's range (238 km<sup>2</sup>) was only slightly larger than the average for the females and was much smaller than that of the juvenile male (526 km<sup>2</sup>), whose movements suggested dispersal; animals sometimes remained in relatively small areas for long periods, presumably because a large food supply (perhaps one or more ungulate carcasses) was available in that area--range size appears generally related to food availability for both sexes, although access to females may also be a factor for males; **MOVEMENTS** - daily movements were generally small, averaging less than 1.5 km/day for most individuals--the longest single daily movement recorded was 17.3 km, by a male kit; **MORTALITIES** among collared animals included a) a subadult male and an old (age 10+) male, both trapped (outside the study area?), b) a male kit apparently killed by wolves, c) an old adult female that first sustained an injury (believed by a wolf), and after being recaptured 3 times in the month following, died in captivity--autopsy showed "parasitic pneumonia" and a kidney disease, d) a female kit believed to have starved, and e) another female kit whose cause of death was "...suspected to be starvation and/or injury"; the energetic demands of producing and feeding young are emphasized as a major potential factor in the condition and survival of females--the one that eventually died in captivity was suspected to have been "weakened" initially in that way; reference is also made to an apparent wolf kill of an uncollared adult male; **HABITAT** use did not differ from availability for females, either generally or seasonally; both collared males used subalpine conifer habitat more in winter and alpine talus less in summer than expected based on availability; there were individual variations, but when data were combined by sex, there were no significant patterns of use of different aspects, elevations, or percent forest cover types; **TERRITORIALITY** - little information on range overlap between and among sexes was obtained although scent marking, especially by residents, was recorded;

**HARVEST** - in regard to harvest patterns, it is acknowledged that climate and economic factors, which may vary from year to year, influence trapper activity; the sex ratio of the harvest varied from 1:1 significantly in only 1 of the 3 study years, but was significant at 1.3:1 in favor of males for the overall sample 258:204; age ratios were not different within sexes or among years, the total harvest comprising 213 juveniles and 200 adults (2+ and older); male kits showed the earliest vulnerability, as the class caught most often in November-January in all years (peak in January); subadult males had a harvest peak in February, possibly their dispersal time; subadults were the smallest harvest class; female kits appear to establish ranges in their natal areas and were apparently not particularly vulnerable until later in the winter (a pattern similar to that for adult males); adult female harvest peaked in February, possibly as they became more mobile and vulnerable to meet the nutritional requirements for parturition and lactation; **NUMBERS** - based on population indices developed for trapped ecoregions, and an estimated density of 1 resident per 177 km<sup>2</sup>, the total Yukon wolverine population was estimated at about 4380 animals; **GENERAL CONCLUSIONS** - availability of food is considered a major factor mediating range size, movements, possibly timing of parturition, reproductive success, and survival of young--vagaries of climate and its seasonal effect on large ungulates is one of several complicating factors; bad winters for ungulates are probably good for wolverines; "As food resources are not consistent among areas nor over time, patterns of habitat use are expected to vary seasonally and locally."; no single habitat type can be identified as important for the species, but large areas providing a diversity of habitats are believed to be required; **HARVEST STRATEGY AND RECOMMENDATIONS** - differential vulnerability of sex and age classes may offer some opportunity for harvest control, although the actual vulnerability pattern of females is still unclear, it is suggested that during winters when availability of food is low, reproduction may be affected and harvest pressure should be reduced; finally, it is recommended that the species status as "big game" should be changed and hunting (which accounts for about 10% of the annual harvest) stopped, since it probably does not act on normal vulnerability patterns, and usually takes animals when pelts are inferior.